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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,836	12/07/2000	Sang In Kim	8733.325.00	8708

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EXAMINER

DUONG, THOI V

ART UNIT PAPER NUMBER

2871

DATE MAILED: 04/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/730,836

Applicant(s)

KIM ET AL.

Examiner

Thoi V Duong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 ~~is/are~~ pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 ~~is/are~~ rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: In page 7, line 6, the reference numeral "21" for source electrode should be "23" and the reference numeral "23" for drain electrode should be "21" according to Fig. 1E.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 1, 2, 4-6, and 8-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Jeong-Hyun Kim et al. (USPN 6,038,008).

As shown in Figs. 7G and 7H, Jeong-Hyun Kim discloses a method of fabricating a liquid crystal display (LCD) having a thin film transistor with a gate electrode 117a, a gate insulating film 123, an active layer 122, an ohmic contact layer 125, a source electrode 115a, and a drain electrode 115b on a transparent substrate 111, said method comprising: forming an organic passivation layer 126 over the transparent substrate and over the thin film transistor; defining a contact hole 131 through the organic passivation

layer to expose the drain electrode; irradiating the organic passivation layer with ultraviolet rays having high-energy or low-wavelength (col. 7, line 27) to form a buffer layer ; and forming a transparent pixel electrode 104 over the rough buffer layer and in the contact hole such that the pixel electrode contacts the drain electrode via the contact hole and such that the pixel electrode adheres to the buffer layer. Kim discloses that the organic passivation layer is comprised of an acrylic organic compound, or benzocyclobutene (BCB), or perfluorocyclobutane (PFCB) (col. 4, lines 60-67; col. 5, lines 1-2), which has a hydrophobic property and a low dielectric constant (col. 5, lines 65-67). Kim further discloses that the UV treating method breaks the Si based bond structure at the surface of the passivation layer, which is substantially exposed to an atmosphere pressure (col. 8, lines 7-11) as a normal processing pressure, using high-energy or low-wavelength radiation, stripping C or H radicals from the surface to create a buffer layer with roughened surface for increasing adhesion to an ITO layer (col. 7, lines 25-29 and 45-47). Accordingly, the buffer layer is an oxide and inherently has a hydrophilic property.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jeong-Hyun Kim in view of Jung-Ha Kim (USPN 6,060,130).

Jeong-Hyon Kim discloses a method of fabricating a LCD that is basically the same as that recited in claim 3 except for the UV wavelengths. Jung-Ha Kim discloses a method for forming an organic passivation layer for electrodes of a thin film transistor in a LCD by irradiating UV light onto the organic passivation layer in the atmosphere of air or oxygen without having to preserve a vacuum state. Jung-Ha Kim teaches that the UV light has a wavelength less than 210 nm so that the energy of the incident UV light, which is irradiated on the organic passivation layer, is larger than the bonding energy of molecules of the layer to decompose the bonds of molecules and generate corresponding radicals (col. 3, lines 19-24; col. 4, lines 43-47). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of fabricating an LCD of Jeong-Hyun Kim with the teaching of Jung-Ha Kim by using ultraviolet rays having wavelengths less than 210 nm so as to obtain enough energy to decompose the molecular bonds of a passivation layer for creating a surface with good adhesion property.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jeong-Hyun Kim.

Kim discloses a method of fabricating a LCD that is basically the same as that recited in claim 7 except for a thickness of the buffer layer. However, Kim describes that the buffer layer created by using UV treatment has a roughened surface having a microscopic unevenness (col. 8, lines 10-11). Thus, with the teaching of Kim, it is obvious that the buffer layer is to be thick enough for obtaining a good adhesion for an

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ITO layer; otherwise, some irregularities such as cracking, peeling off for the electrode layer may occur.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1, 2, and 4-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10, 15-17 of U.S. Patent No. 6,038,008. Although the conflicting claims are not identical, they are not patentably distinct from each other because the only difference between the LCD of the instant claims and that of the claims of the patent is the thickness of the buffer layer. However, such thickness would have been obvious to a person of ordinary skill in the art for producing a buffer layer having microscopic unevenness to improve adhesion property.

9. Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,038,008 in view of U.S. Patent No. 6,060,13. The in-view patent discloses in claim 5 that the UV

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light has a wavelength equal to or lower than 210 nm (or a power equal to or higher than 30 W). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply ultraviolet rays having wavelengths lower than 210 nm on the organic passivation layer so as to obtain a buffer layer with good adhesion property.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication should be directed to Thoi V. Duong at telephone number (703) 308-3171.

Thoi Duong

04/11/2002



William L. Sikes
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